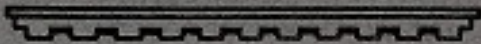




Single-sleeve six
25-70 VAUXHALL


*The Single
O-Sleeve Six*

VAUXHALL

MOTOR CARRIAGES

THE SINGLE-SLEEVE SIX

25-70 H.P. MODEL



(The 14-40 h.p. and 30-98 h.p. models are described in separate catalogues)

VAUXHALL MOTORS LIMITED, LUTON, BEDFORDSHIRE
 Telephone: Luton 466 (4 lines) Codes: Motor & Barclay Telegrams: Carvauz Luton
LONDON: 174-182 GREAT PORTLAND STREET, W.1
 Telephone: Museum 8216 (3 lines) Telegrams: Carvauz Photo London
LONDON SERVICE STATION, RICKETT STREET WORKS, LILLIE ROAD, WEST BROMPTON, S.W. 6
 Telephone: Western 4237 and 4738 Telegrams: Carvauz Photo London
 Argentina: Pases Colon 1161 and 1167, Buenos Aires
Admiralty and War Office Contractors



A full-sized motor carriage of the most stately kind: the 25-70 h.p. Vauxhall "Granite" enclosed limousine.

FOREWORD

A NEW CAR OF HIGH LUXURY

SMOOTH silent power has never been so surely attained, its principles have never been so thoroughly mastered, as in the 25-70 h.p. Vauxhall. Smoothness and silence are to be expected in an ultra-refined single-sleeve valve engine with six cylinders. But the Vauxhall engine is *unique in the way it produces power*: it gives the best power output combined with smoothness, silence and economy, each in the highest degree.

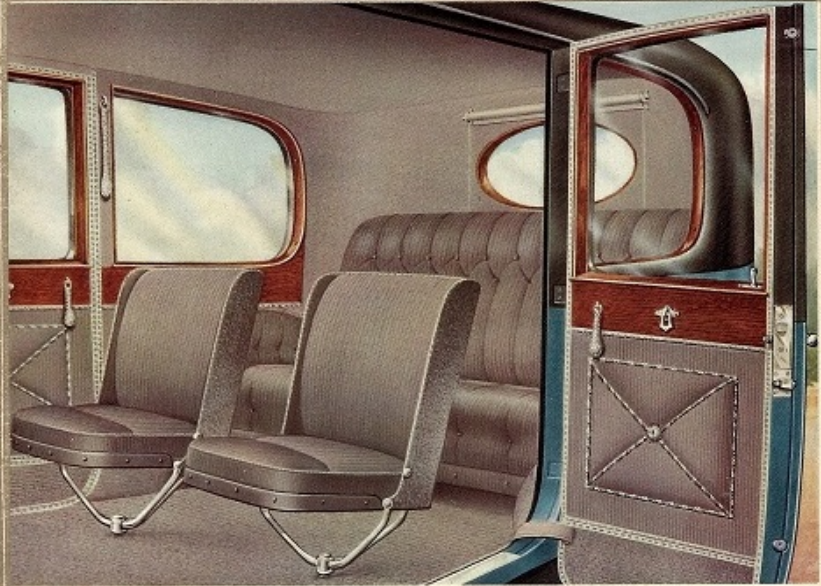
This is due to new elements of design, the fruit of exhaustive research and experiment, in which has been enlisted the aid of some of the most brilliant minds in the engineering profession, to co-operate with the Vauxhall Company's technical staff.

It hardly needs stating that the highest ideals have inspired in its entirety a design wherein the engine itself is of so remarkable a kind. The performance of this superb motor carriage surpasses all previous achievements in the field of luxury car design.

Propelled as it were by a force mysteriously concealed, for no signs of it are observable, it makes light of a mile-a-minute with a commodious six or seven-seated body, weighing with a full complement of passengers more than two tons. It is equipped with brakes enormously powerful, yet delicately efficacious. It has extreme steadiness at all speeds, particularly to be appreciated in 'cornering.' It is endowed with marked flexibility and accelerative powers.

To drive this car is undiluted joy—the joy of a driver in a machine of perfect action. To ride in it is restful comfort of body and serenity of mind, for there is that about it which at once wins confidence. Whether drifting along Bond Street or travelling swiftly on the highway, it shows no change in its manners. Smooth silent power whatever its speed, whatever (it might be said) its period of use; whether on the level or gliding uphill. Here indeed is a car with "the keen unpassioned beauty of a great machine," to arouse enthusiasm in the connoisseur.

VAUXHALL THE CAR SUPEREXCELLENT



THE 25-70 H.P. VAUXHALL 'GRANTON' ENCLOSED LIMOUSINE

THIS drawing of the 'Granton' gives an idea of the capacious occasional seats, which revolve on swivels, and the rich style of the furnishing.

For particulars, see the description of the 'Rutland' enclosed landaulet, page 11, the only difference being that the 'Granton' has of course a fixed roof. Views of the complete car are given in the frontispiece, and in the smaller picture on the cover.

Price £1,675

THE SINGLE-SLEEVE SIX

25-70 H.P. VAUXHALL

I THE ENGINE

NOTABLE for embodying the results of recent advances made in applying the principles of smooth silent functioning, the new Vauxhall engine has six cylinders and single-sleeve valves—hence its short title, the single-sleeve six.

Sleeve valve engines possess marked advantages in (1) the valve actuation, which is positive and silent; (2) the ports, which by their shape and size ensure the freest passage to the charge and the exhaust; (3) the central plug position in a chamber of compact symmetrical form, which results in high thermal efficiency.

Single-sleeve valves are superior to all other types of sleeve valve in simplicity, ease and silence of operation and aptitude for lubrication.

The path travelled by the sleeve is elliptic. This rotary and reciprocal motion of the single-sleeve valve permits a rate of opening of the ports much faster than hitherto has been found practicable in conjunction with silence. In promoting the turbulence on which efficient combustion depends this property of the single-sleeve valve is of the first importance. Its effect is enhanced in the Vauxhall engine by the size, form and arrangement of the ports.

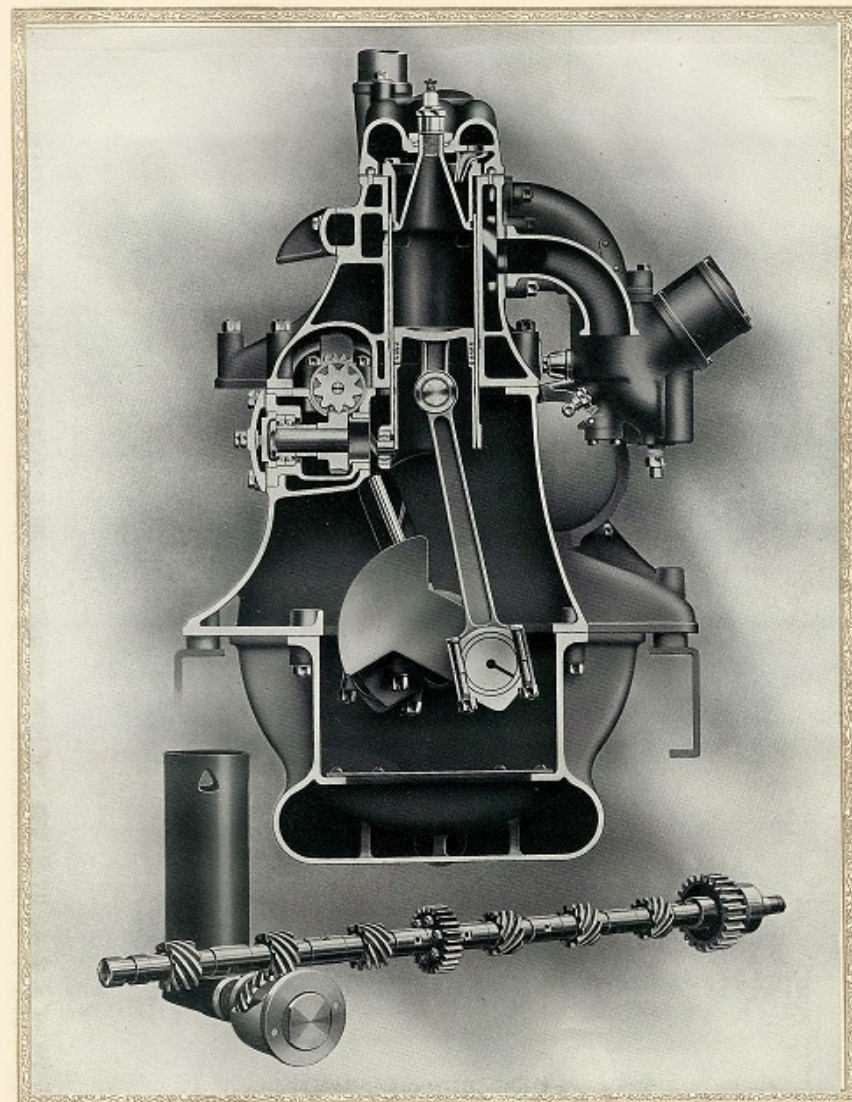
Smooth power is the product of many factors. At the root of all lies a successful handling of the problems of turbulence and combustion chamber design. Notably because these problems have been studied in the Vauxhall engine with unexampled thoroughness has a conspicuous superiority been attained in the smooth development of power.

VAUXHALL THE CAR SUPEREXCELLENT

*The
Single-Sleeve
Valve*

*Rotary &
Reciprocal
Motion*

*The Secret of
Smoothest
Power*



Engine, cross section. Valve and driving gear.

The form of the combustion chamber—a conical frustum, the sparking plug in the apex—marks an epoch in the progress of combustion chamber design. A wonderful stride forward has been made in this design, which brings into play an entirely new influence and with it a new significance in the phrase smooth power. Nothing comparable to the Vauxhall engine in this quality is built at the present time. The shape of the combustion chamber has the further advantage of bringing the cooling water into the closest possible contact with the vicinity of the sparking plugs.

*New Elements
of Design*

Smooth silent power. In the Vauxhall engine the factors of turbulence and rate of burning have been brought under control, and so adjusted that the best power output is obtained and yet the 'hammer-blow' kind of explosion avoided. In the Vauxhall engine, consequently, no sacrifice need be made of power in order to gain smoothness, or of smoothness in order to gain power. The power is high and it is smooth. There is high compression, ensuring fuel economy, yet there is unprecedented smoothness. The engine might be actuated by steam.

*Turbulence
and
Combustion*

Not only for its mastery of the problems of turbulence and combustion is the new Vauxhall engine remarkable; in the cooling system likewise a new line of research has been successfully explored. The Vauxhall cooling system has been evolved specially to meet the requirements of the single-sleeve valve engine. It solves the problem of controlling the temperature in the vital region of the combustion head.

*New Cooling
System*

Differing radically from both of the conventional methods in present use the Vauxhall cooling system, instead of using the pump merely as a general help to thermo-syphon action, causes it to operate oppositely to the natural convection currents, but only round the combustion head. The pump delivers the cold water into a longitudinal pipe, which is an integral part of the aluminium top water fitting. Here the whole cold water supply is separated into six high-velocity jets directed right against the heads, which are thereby kept at an equable temperature, uniform with that of all other portions of the engine.

*Combustion
Head
Temperature*

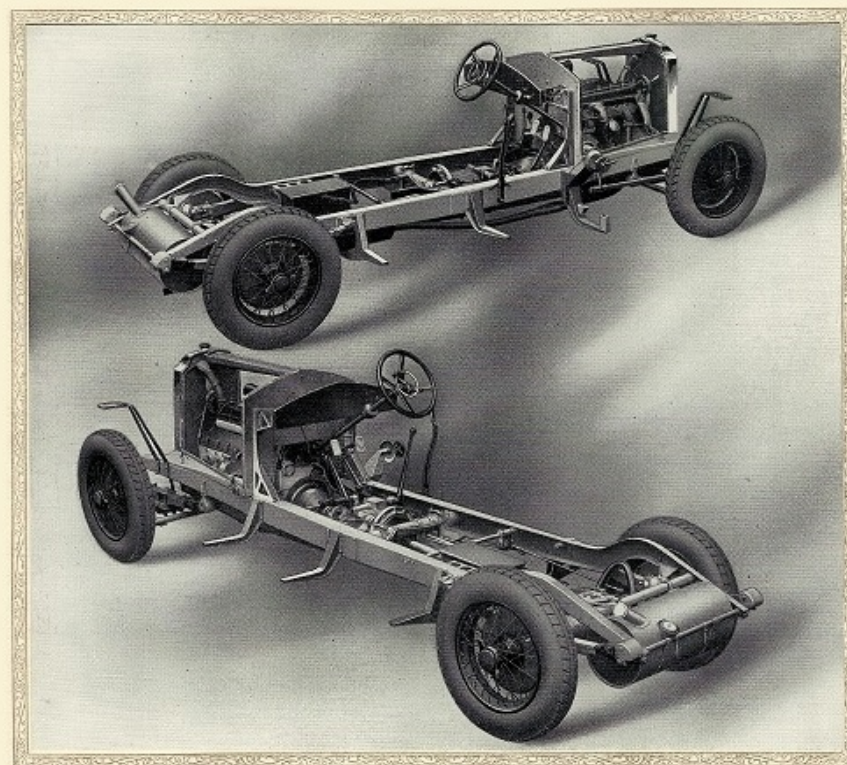
Efficient temperature control is above all essential in a sleeve-valve engine, and thus a material advantage is possessed by the Vauxhall design. The sleeves cannot carbon up; hence there is no possibility of knocks or of seizure after prolonged running. Expansion is uniform. The hot running condition is essentially the same as the cold. The mechanical and volumetric efficiencies are well maintained up to high speeds—3000 r.p.m. is not looked upon as excessive. As well as with smooth, silent power the engine is endowed with conspicuous liveliness and flexibility, and it maintains its pristine condition almost indefinitely.

*Liveliness,
Flexibility,
Tune-keeping*

Mechanically, the new Vauxhall engine is a revelation of care in balancing. Every moving part is weighed and corrected. The crankshaft is of quite exceptional proportions, and of corresponding rigidity; counterbalanced on each web it merely floats in its ten bearings. Thus balanced, and with generous bearing surfaces lubricated at high pressure by filtered oil, it is virtually immune from wear.

*Engine
Balance*

VAUXHALL THE CAR SUPEREXCELLENT



A chassis of simplicity and strength.

*Quiet Valve
Actuation*

A silent chain connects the crankshaft at its front end to the sleeve-operating worm shaft, which is mounted in nine bearings, and operates the sleeves through worm gears and cranks rotating at half engine speed. The motion given to the sleeve is a compound of rotation and reciprocation, so that the torque is practically constant; this constancy of sleeve driving torque renders the mechanism silent and reduces wear to negligible proportions.

*Magneto &
Dynamo Drive*

The magneto and lighting dynamo are driven by a silent chain connecting them to the centre of the sleeve driving shaft, a robust housing accommodating both very snugly. A feature worthy of note is the eccentric chain compensation by rotation of this housing without disturbing the magneto or dynamo.

VAUXHALL THE CAR SUPEREXCELLENT



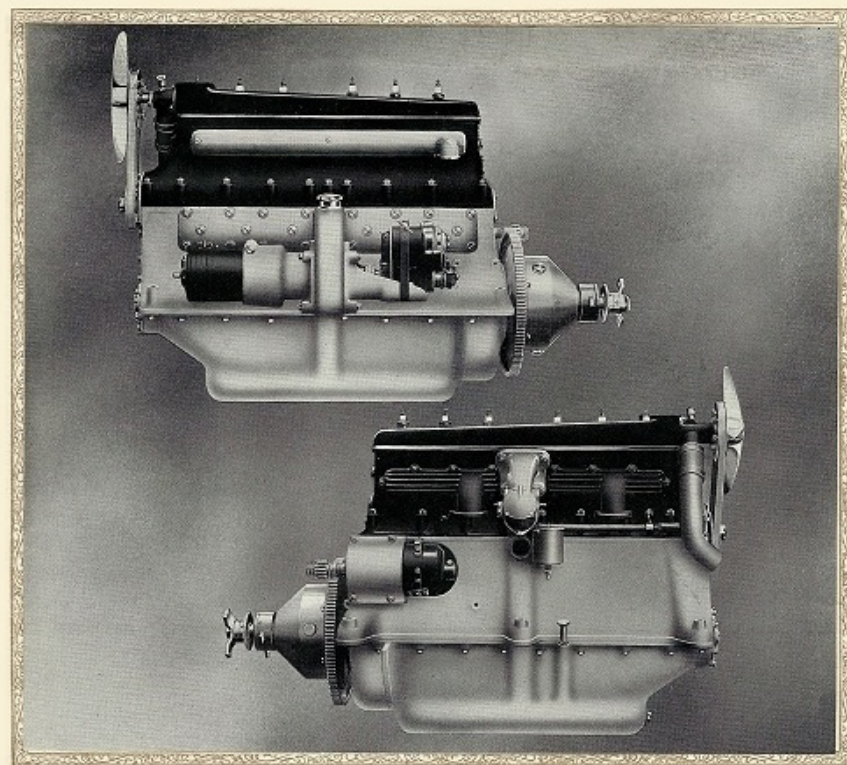
THE 25-70 H.P. VAUXHALL 'RUTLAND' ENCLOSED LANDAULET

Hardly distinguishable when the roof is closed from a limousine, the 'Rutland' offers the advantage of allowing the rear part to be opened to the air in fine weather.

FOLDING head, covered with best quality cross-grained leather. Upper portion of the dividing partition can be taken down as a whole, affording the same communicability between front and rear as in a saloon. Seating for seven; revolving occasional seats capacious and really comfortable. Spring armrest to rear seat. Polished walnut instrument board, receptacles each side, instruments grouped in middle and illuminated from behind. Fittings include: windscreen wiper, driving mirror, parcel net, cabinet containing a watch and two companions, two silk rope pulls, silk roller rear blind, pile carpets and roof light in both compartments. Body furnishing of rich walnut cabinet-wood and leather or cloth upholstery, with pile carpet for the lower part. Plate-glass windows in felt-lined metal channels, with patent regulators. Luggage grid.

(Full specification to be had on request)

Price £1,675



The engine is unusually compact.

Piston & Connecting Rod Design

The aluminium alloy pistons are of special die-cast design, with the merit of entire freedom from 'piston slap.' Three rings are fitted, the lowermost effectually preventing a superfluity of oil from passing to the piston crown. Duralumin forgings are used for the connecting rods, which are of sturdy proportions but extraordinarily light. Both piston and connecting rod are of exceptional length.

Lubrication & Design of Bearings

The main and big-end bearings of the crankshaft, and also the sleeve-driving shaft bearings, are supplied with filtered lubricant under pressure from a gear pump. The bearings throughout the engine are fitted with bronze shells, lined with anti-friction metal. The white metal has surface contact virtues which are peculiarly its own, and being but a thin film supported by the bronze, cannot be caused to 'flow.'

VAUXHALL THE CAR SUPEREXCELLENT



THE 25-70 H.P. VAUXHALL 'ROYTON' TOURING CAR

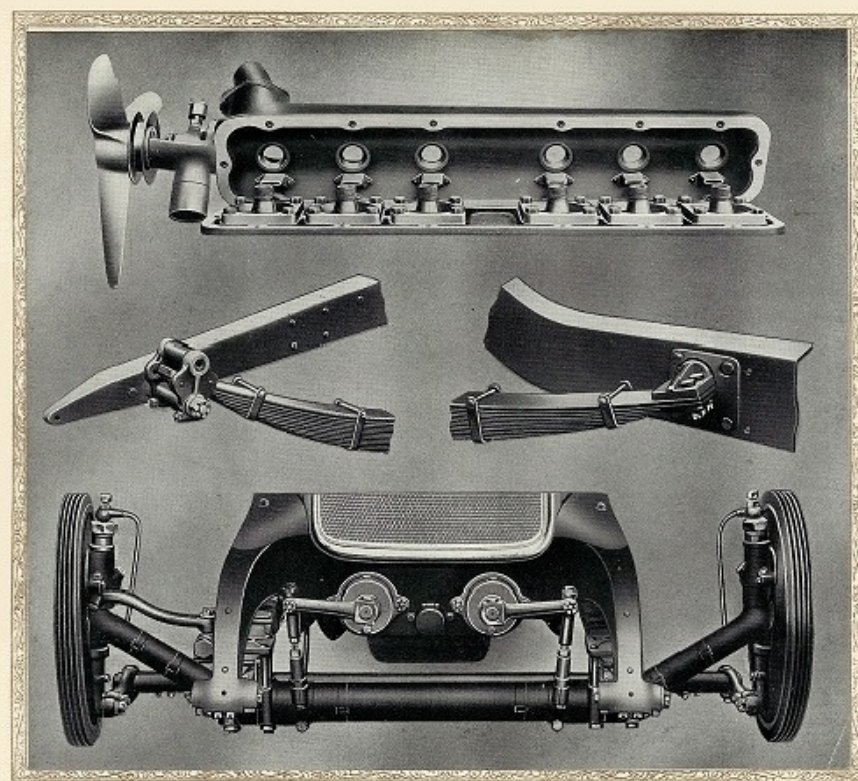
With its air of breed and its shapely lines the 'Royton' is in accord with current ideas of what a powerful touring car of the best class should look like.

ALMOST peculiar to Vauxhall touring cars is the treatment of the scuttle, which is carried well back, bringing the windscreen close to the steering wheel; scuttle and windscreen together give the maximum shelter to those in front. Ample room for five persons. Front seat adjustable for reach. Upholstery, best quality leather. Two spare wheels carried low down. Polished walnut instrument board, convenient receptacles each side, instruments grouped in the middle and illuminated from behind. Fittings include windscreen wiper and rear windscreen. Wheel tools in ventilated tool-box mounted on grabboard; others in waterproof wraps stowed in foot-rest behind front seat. Hood and rigidly framed side-screens opening with the doors provide excellent all-weather equipment. Luggage grid.

[Full specification to be had on request]

Price £1,350

The 'ANCANTINE' seven-seated touring car, £1,400



Cooling for combustion heads. Spring attachment. Front axle.

*Induction &
Exhaust
Passages*

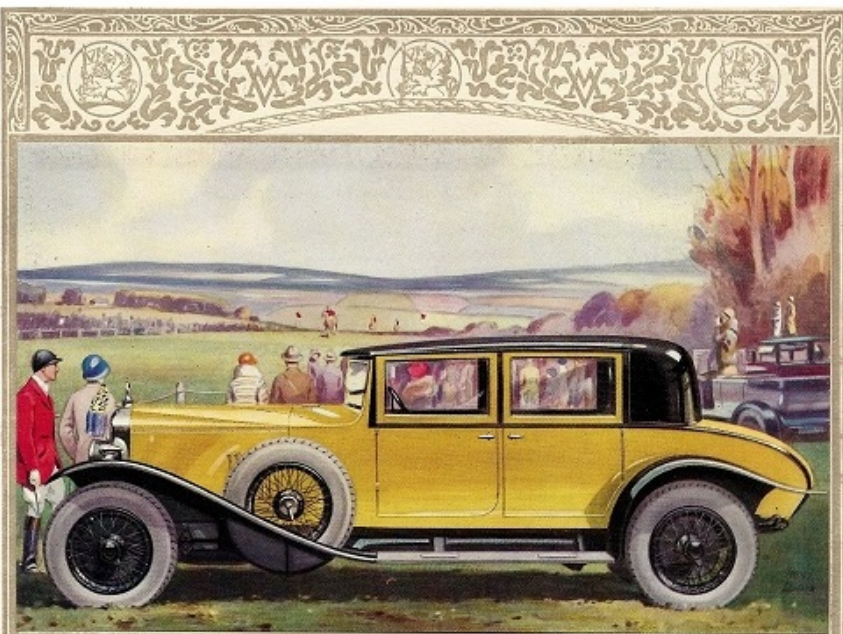
So far as concerns the induction and exhaust passages, the engine is a twin three-cylinder; interference between the front and rear trio of cylinders is thus avoided. Each cylinder is supplied with the charge through three orifices, ensuring uniform distribution. The water passages are so arranged that the exhaust region is kept at an equable temperature, and distortion of cylinder barrels need not be apprehended.

II THE BRAKING SYSTEM

*Hydraulic
Four-Wheel
Braking*

Intense retarding power, extreme smoothness and unfailing dependability characterise the Vauxhall four-wheel hydraulic braking system. Light pressure on the pedal yields adequate rates of deceleration; but when required, stupendous stopping power with absolute safety is available. The most violent tests have failed to cause anything approaching a bad skid, so perfect is the compensation.

VAUXHALL THE CAR SUPEREXCELLENT



THE 25-70 H.P. VAUXHALL 'ORMONDE' SPORTING SALOON

A light saloon of very striking appearance, the 'Ormonde' combines with sporting lines special features of design to ensure comfort in fast travelling.

LOW-BUILT body, floor-boards recessed below frame line, rear seat well forward of axle. Seats four persons in ample comfort. Separate front seats with polished walnut tops, both adjustable. Spring armrest to rear seat. Two doors and two windows each side. Driver's window has sliding pane to permit of easy signalling; the others have patent winders. Fittings include: windscreen wiper, driving mirror, large roof ventilator, two companions, cigar lighter, silk roller blinds to all windows, hat and parcel nets, and pockets on the rear doors and backs of the front seats. Polished walnut instrument board, lock-up roll cover, receptacles each side, instruments grouped in the middle and illuminated from behind. Body furnishing of rich walnut cabinet-work and leather or cloth upholstery, with pile carpet for the lower part.

(Full specification to be had on request)

Price £1,575

will be equivalent to the inclination of the road through a *right angle* without shock. This illustrates the power available should emergency call for it. Delicate application of the brakes, however, is rendered easy by the direct pedal operation, so that in usual practice the car is retarded in the sweetest manner. (A description of the mechanism is given on page 21.)

III THE TRANSMISSION

A nickel steel sub-frame of unusually stiff section is suspended from the front and central cross members (the latter tubular) of the main frame, and carries both the engine and gearbox, immunity from torque recoil being thereby gained.

Light Multi-plate Clutch

The clutch is of the multi-plate type, which is supreme in the quality of sweet engagement. It is the product of extended experience in this form of clutch. Its precision of functioning renders silent gear-changing a habit readily acquired. As a consequence of the unvarying friction conditions the spring pressure employed, while it secures freedom from clutch-slip even under the heaviest loads, permits of remarkably light declutching. A feature of this clutch is perfect running balance.

Rigidly Mounted Gears

The gearbox is notable for its compactness and rigidly mounted gears. The reduction pinion is exceptionally well supported in roller bearings, and its mating wheel is carried by two ball journal bearings. As the gears are ground after hardening their action is the pure rolling of theory, which combined with the rigid mounting and oil-bath conditions of lubrication is the best guarantee that they will remain silent indefinitely.

Rear Axle Strength

The rear axle is of the semi-floating type, with roller bearings and spiral bevels. It combines great strength with lightness; steel tubes of large diameter take the weight, the central casing being of aluminium.

IV FRAME AND SPRINGS

Exceptional Frame Rigidity

The main frame is stiffened not only by robust cross members, but also by the aluminium dash-board itself, which acts as a girder of very deep section by means of connecting brackets. These brackets carry also the front step-irons and spare wheel carriers. The combined weight of the spare wheel and a person standing on the running-board causes no frame deflection. The middle step-irons are located at that part of the frame braced by the tubular cross member. The rear step-irons go right across the frame under the propeller shaft.

Spring Comfort

The springing is designed to ensure, as well as insulation from shocks, great steadiness on the road. Semi-elliptic springs are employed. The rear springs are mounted on top of the axle tubes and attached to the side of the frame at the highest point possible. The spring centres are as far apart as the brake drums will permit. The frame being very wide, this positioning of the springs ensures complete freedom from swaying motion.

VAUXHALL THE CAR SUPEREXCELLENT

Spring links with plain bearings give way to a simpler and more durable form of attachment ; one that greatly extends the period of springing comfort and does away with the trouble that may be caused either by seizure of shackle pins through neglect, or by the difficulty of getting the lubricant home to the points where it is needed.

*Shackles and Pins
Eliminated*

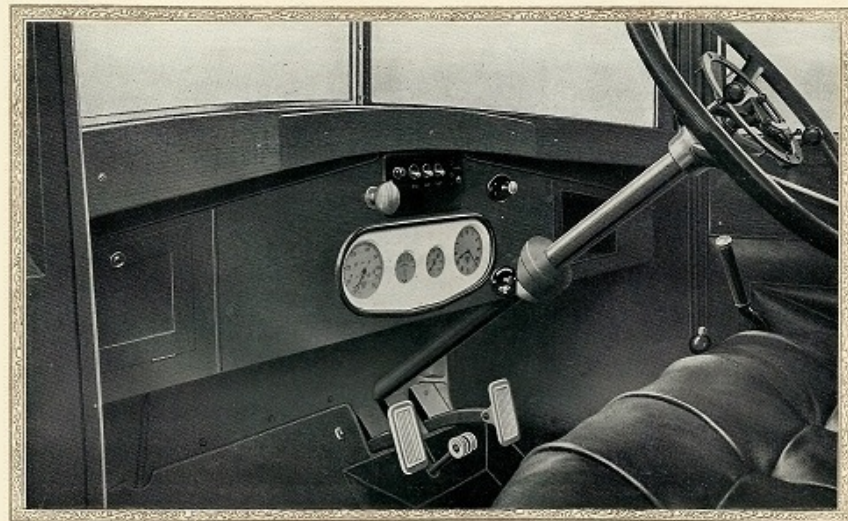
The master leaf is at one end clamped to a spindle resting on roller bearings ; at the other end it lies free for the necessary movement, between roller bearings. Rubbing friction is thus replaced by rolling friction. A neglected roller bearing can never occasion so much friction as a neglected plain bearing. The bearings can, however, be easily reached, and they all work on hardened and ground surfaces ; even if they are not attended to, there will be practically no wear. To appreciate what this means, it should be remembered that friction in the eyes and links of springs is a far more potent cause of rough riding and noise than is friction between the leaves only.

*Simplified Spring
Lubrication*

V PERFORMANCE

The outstanding impression made on everyone who has tried the car is that it feels extraordinarily safe. To feel safe in a Vauxhall car is not unusual, but the sense of security the 25-70 Vauxhall gives to those riding in it is altogether out of the common, arising as it does from the combined effects of extreme rigidity of construction, exceedingly comfortable springing, the absolute precision and ease of control, and smooth but very powerful brakes.

*The Feeling of
Safety*



Driving compartment ; central instrument panel, illuminated from back.

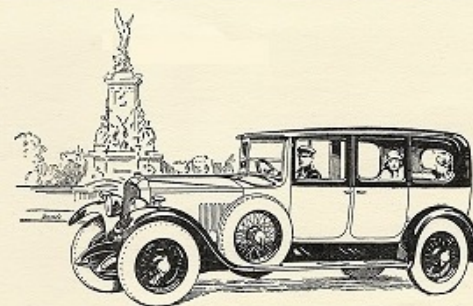
*Incomparable
Smoothness &
Silence*

The high rates of revolution permitted by the incomparably smooth running of the engine give the car a maximum speed which will be considered amply sufficient, bearing in mind its weight and the purpose it is intended for. With a loaded closed car sixty miles an hour is easily reached. Its smoothness and silence are extraordinary. Its flexibility and liveliness are of a very high standard. In every function of the large car of luxury it displays consummate efficiency.

From these indications it will be gathered that the performance of the 25-70 Vauxhall in all circumstances will give the fullest satisfaction, however high may be the standard of judgment brought to bear on it.

PARTICULARS OF MATERIALS

Part	Material	Ultimate stress—tons per sq. in. (approx.)	Elastic limit—tons per sq. in. (approx.)	Elongation on 2 inches per cent. (approx.)
Crankshaft	High tensile steel	50	35	20
Gear shafts, propeller-shafts and axles	Nickel steel	40	28	25
Gear wheels	Air-hardening nickel-chrome steel	100	90	14
Front axles	5% Nickel steel	55	45	25
Stub axles	Nickel-chrome steel	60	45	25
Crankshaft bearings	Special bronze	22	20	3
Connecting rods	Duralumin	30	20	23
Pistons	Aluminium alloy	—	—	—
Cylinders	Cast iron	—	—	—
Levers	Mild steel	35	25	25



VAUXHALL THE CAR SUPEREXCELLENT

